Bonneville Power Administration
Fish and Wildlife Program FY98 Watershed Proposal Form

Section 1. General administrative information

Title **Improve Yakima River Water Quality**

Bonneville project number, if an ongoing project 8047

Business name of agency, institution or organization requesting funding
Roza-Sunnyside Board of Joint Control

Business acronym (if appropriate) RSBOJC

Proposal contact person or principal investigator:

Name James W. Trull
Mailing Address PO Box 239
City, ST Zip Sunnyside, WA 98944
Phone (509) 837-6980
Fax (509) 837-2088
Email address

Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name

NPPC Program Measure Number(s) which this project addresses.

NMFS Biological Opinion Number(s) which this project addresses.

Other planning document references.

Subbasin.
Lower Yakima River

Short description.
Improve the water quality discharging to the lower Yakima River from the RSBOJC service area. This will enhance the quality of the existing wetlands and wildlife habitat areas that have developed in the lower Yakima River Basin.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish		Construction		Watershed
*	Resident fish	X	O & M		Biodiversity/genetics
*	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	*	Ecosystems
	Climate		Monitoring/eval.		Flow/survival
	Other		Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement	X	Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.
water quality, soil erosion, wildlife habitat

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Inventory Project Waterways	a	Determine areas needing buffer strips
2	Define Buffer Sizes	a	Determine land acquisition requirements
3	Acquire Property	a	Survey & legal descriptions
		b	Negotiate with property owners
		c	Transfer title of property
4	Protect Buffer Strips	a	Determine fencing requirements

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	4/1998	7/1998	5.00%
2	7/1998	8/1998	3.00%
3	8/1998	9/1998	28.00%
4	9/1998	11/1998	64.00%
			TOTAL 100.00%

Schedule constraints.
Negotiation with landowners for acquisition of property.

Completion date.
2002

Section 5. Budget

FY99 budget by line item

Item	Note	FY98
Personnel	RSBOJC Staff	$60,000
Fringe benefits		$30,000
Supplies, materials, non-expendable property	Fencing materials	$27,500
Operations & maintenance	None in first year	$ 0
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Land acquisition	$40,000
PIT tags	# of tags:	
Travel	Vehicle mileage	$2,000
Indirect costs	Office overhead	$1,500
Subcontracts		
Other		
TOTAL		$161,000

Outyear costs

Outyear costs	FY99	FY00	FY01	FY02
Total budget	$100,000	$75,000	$50,000	$25,000
O&M as % of total	2.00%	2.00%	2.00%	2.00%

Section 6. Abstract

The Roza-Sunnyside Board of Joint Control (RSBOJC) service area contains over 1,000 miles of irrigation and drainage facilities. These waterways are maintained to provide service to irrigation waterusers. With proper management and physical improvements to naturally vegetated buffer strips adjacent to the waterways, the quality of the water that they discharge to the Yakima River could be enhanced. The RSBOJ proposes that buffer strips in certain portions of the system be developed and protected to maximize the water quality while maintaining the irrigation and drainage function of the facilities. The locations of the most favorable sites need to be determined by making a field inventory of the waterways. It is anticipated that limited amounts of land adjacent to the waterways will be necessary to accomplish the goals. After the buffer strips are identified and the necessary property is purchased, the areas will be protected by installation of suitable fences and barriers to prevent encroachment.

The concept of sediment removal by settling and filtration through natural vegetation is a well proven technology and is currently working well in parts of the system. The proposed project will correct problems that exist in some areas.

The buffer strip program to enhance water quality could be implemented very quickly. With approval of funding, the first phase of the work could be completed within one year. As funding permits, additional buffer strips will be created in other parts of the system. At the funding rate requested, the program could be completed within approximately five years.

The effectiveness of the buffer strip program will be measured in conjunction with the RSBOJC water quality monitoring program. The presence of constituents such as turbidity, suspended solids, and fecal coliform in the water returning to the Yakima River are expected to diminish as the buffer strip program is implemented.

Section 7. Project description

a. Technical and/or scientific background.

The water quality of the Yakima River has been evaluated by many agencies. Those studies conclude that the low flow rates and high levels of turbidity that exist at certain times of the year are detrimental to fish and wildlife. Several studies and on going data collection programs identify the major agricultural drain channels as significant sources of suspended sediments. The very fine texture of soil in the lower Yakima Valley that makes it premium farm land also contributes to the basin's water quality problem. The fact that the soil erodes very easily and then stays in suspension for long periods of time makes it necessary to actively manage the problem that has existed for many years.

Recent efforts to conserve water by improving irrigation distribution systems and modernizing farm practices have had some influence on water quality, especially turbidity. The buffer strip program proposed will further improve the quality.

b. Proposal objectives.

It is the objective of the RSBOJC buffer strip project to improve the quality of water returning to the Yakima River. The program represents significant increment of improvement that can be achieved in a very cost effective manner. The work will not interfere with the current farming practices and will improve the RSBOJC's capability to manage the irrigation and drainage waterways.

The success of the buffer strip project can be monitored by expanding the agency's water quality program. Much background data has already been collected and will serve as a benchmark to measure the improvements.

c. Rationale and significance to Regional Programs.

The rationale behind the concept of buffer strips along the existing waterways is very basic. In most cases, the existing easements and rights-of-way have the potential to provide space for adequate buffers. Adjacent land uses such as cattle grazing and tillage have encroached into the areas adjacent to the waterways. The resulting removal of the natural vegetation and activity by cattle has resulted in channel bank damage, erosion, and higher levels of turbidity. Installation of fences to identify and protect the buffer strips will facilitate continued operation and maintenance of the irrigation and drainage facilities and improvements in water quality will result.

d. Project history

The proposed program is a formalization of a plan to protect and enhance the buffer strips that have existed to varying degrees for many years.

e. Methods.

Implementation of the buffer strip project to improve the quality of water returning to the Yakima River will consist of several sequential steps. It will be necessary to survey the RSBOJC waterways which consist of more than 1,000 miles of irrigation and drainage facilities. This survey will identify locations where problems exist that can be corrected by establishing or enhancing buffer strips. The use of current aerial photography would expedite the preliminary work. It is possible that the photography needed for this project will also be usable for other related work. However, it will be necessary to make a field review the specific sites targeted for improvements. Details such as adjacent land use, utilities, topography, soil characteristics, land ownership, and access will be best determined in the field.

After the potential sites are identified, it will be necessary to evaluate the benefits and impacts associated with each one. A priority ranking for the sites can be developed to assure that the work is directed toward the ones that will produce the best results at reasonable costs.

In cases where additional land is needed to establish adequate buffers, it will be necessary to eliminate encroachments or acquire more land. Negotiations with the adjacent landowners will be needed in either case. It is expected that there will be significant project costs associated with acquisition of the needed land and relocation of some utilities. Land transfers will require that existing and revised property lines be established and described by licensed surveyors.

The construction activities that will be required are expected to be quite simple. To establish the buffer strips it will only be necessary to install fences and barriers to define the areas. Agricultural style barbed wire fences will be adequate to keep livestock out of the buffers and mark their location. The vegetation that is needed to control erosion and filter sediment from surface flows of water will establish itself naturally in most cases. There may be some locations that some regrading and seeding will be needed to restore heavy damage such as loss of topsoil or severe eroded gullies.

There will be a need for continuing inspection and maintenance of the buffer strips. RSBOJC has staff and is prepared integrate this on going activity into the channel maintenance program.

f. Facilities and equipment.

The work needed to complete the buffer strip project is similar to the type of work regularly performed by the RSBOJC staff. It is not anticipated that it will be necessary to acquire any additional specialized equipment or facilities.

g. References.

CH2M HILL, 1975. Agricultural Return Flow Management in the State of Washington. Prepared for Washington State Department of Ecology.

Department of Ecology, 1990. Statewide Water Quality Assessment 350 (B) Report, State of Washington.

USGS, 1976. Sediment Transport by Irrigation Return Flows in the Lower Yakima River Basin, Washington. Open File Report 78-946.

Section 8. Relationships to other projects

The buffer strip project is related to efforts currently underway and proposed to improve the quality of water in the lower reaches of the Yakima River. This project very specifically links to and depends upon the RSBOJC water quality monitoring program. It is also closely tied to the farm practices improvement program. Aerial photography that is needed for the farm practices program will expedite the buffer strip program.

On a larger scale, the improvements made to the RSBOJC waterways will produce a significant increment of water quality improvement that is complementary to the programs done by others in the Yakima Basin.

Section 9. Key personnel

The work will be accomplished with RSBOJC staff and a limited amount of temporary staff hired locally.

Section 10. Information/technology transfer

The project is expected to serve as a demonstration of the benefits that can be achieved by managing the quality of water that returns to irrigation and drainage waterways by using managed buffer strips. This concept could be applied to many other irrigation and drainage projects.